

REMARKS

Claims 1 through 6 remain pending in this application. In response to the non-final Office Action dated April 7, 2005, claims 1 and 2 have been amended. Care has been taken to avoid the addition of new matter. A petition for extension of one month of the period for response to the Office Action and appropriate fee charge authorization are filed herewith. Favorable reconsideration of the application as amended and allowance are respectfully solicited.

Claims 1 and 6 have been rejected under 35 U. S. C. § 102(b) as being anticipated by U.S. patent 5,998,814 (Yamaha). The rejection, set forth at paragraphs 3 and 4 of the Office Action, states that “[i]t is inherent that the dummy pattern 13 [of Yamaha] has a tensile stress higher than that of another portion 13 since the width is considerable [sic] greater than that of the other portion 13.” Applicant takes issue with this conclusion.

Yamaha discloses a dummy interconnection for planarizing a surface of an insulating layer. Yamaha does not disclose a dummy interconnection provided with a stress concentration portion having tensile stress higher than that of the interconnection.

In the interconnection structure disclosed in Yamaha, silicon oxide layer 14b formed by SOG and silicon oxide layers 14a and 14c formed by CVD are disposed on the surface of an interconnection including dummy wiring 13 (see column 3, lines 56-59). As for silicon oxide layers 14a and 14c formed by CVD, they are generally formed by TEOS-ozone, which is described in column 1, lines 37, 38. Generally, tensile internal stress is generated in a silicon oxide layer formed by SOG or TEOS-ozone. Therefore, compressive stress is generated in dummy wiring 13 which is in contact with this silicon oxide layer. The width of the dummy pattern is not an indicator of greater tensile stress.

Moreover, independent claim 1 as amended requires:

a dummy interconnection electrically connected to an interconnection forming a portion of a circuit

Claim 2 has been amended to recite additional structural features.

The present invention is characterized by concentrating vacancies and micro-voids within an interconnection in a dummy interconnection. If the dummy interconnection is not electrically connected to a circuit interconnection, the vacancies and micro-voids do not move to the dummy interconnection. The dummy wiring in Yamaha is electrically independent and not connected to an interconnection forming a portion of a circuit. Therefore, even if it were to be assumed that tensile strength is generated in the dummy wiring in Yamaha, there is no possibility that vacancies and micro-voids move to the dummy wiring as required by amended claim 1. The interconnection structure recited in claim 1 is structurally different from that in Yamaha. It is submitted, therefore, Yamaha does not anticipate claims 1 and 6. Withdrawal of the rejection is respectfully solicited.

Dependent claims 2 and 3 have been rejected under 35 U. S. C. § 103(a) as being unpatentable over Yamaha in view of U.S. patent 6,414,393 (Sumino). Sumino has been relied upon for disclosing a dummy interconnection that is connected to an interconnection body. Sumino has not been relied upon for disclosing the claimed tensile stress feature. Amended claim 2, dependent from claim 1, recites this feature as well as the additional structural features added by amendment.

Sumino discloses a structure in which dummy pattern 3 is connected to connection wiring 62 via contact 61. However, Sumino does not disclose a stress concentration portion having tensile stress higher than that of the interconnection forming a portion of a circuit as recited in parent claim 1. Further, claim 2 has been amended to require that the second end portion of the dummy wire is electrically disconnected. Even if it were to be assumed that contact 61 of the

interconnection structure described in Sumino relates to the dummy interconnection recited in claim 2, and it is further assumed that tensile stress is generated in contact 61, contact 61 has the first end portion connected to connection wiring 62 and the second end portion connected to dummy pattern 3. Thus vacancies and the like flow into contact 61 not only through connection wiring 62 but also through dummy pattern 3. As a result, the effect of collecting the vacancies and the like from connection wiring 62 is considerably deteriorated. Furthermore, the vacancies and the like may flow from dummy pattern 3 via contact 61 into connection wiring 62.

Claim 3 is dependent from claim 2. It is submitted that, even if the Yamaha and Sumino structures were to be combined as proposed, claims 2 and 3 are still distinguishable from the resulting combination. Withdrawal of the rejection of claims 2 and 3 is respectfully solicited.

Claim 4 has been rejected under 35 U. S. C. § 103(a) as being unpatentable over Yamaha in view of Sumino and further in view of JP-07-106323 (Iku). Claim 5 has been rejected under 35 U. S. C. § 103(a) as being unpatentable over Yamaha in view of Sumino and further in view of JP-07-106323 (Iku) and further in view of U.S. patent 5,815,226 (Yamazaki).

Claims 4 and 5 are dependent from claim 1 and recite additional details. Iku and Yamazaki have been relied upon to conclude that it would have been obvious to provide these additional claim requirements in the proposed combination of Yamaha and Sumino in the stated rejection of claim 2. It is submitted, however, that Iku and Yamazaki do not teach the claimed tensile stress feature and claimed dummy disconnection feature of claims 1 and 2. Thus, the combination of all references as proposed in the Office Action would not have led to the invention recited in claims 4 and 5. Withdrawal of the rejection is respectfully solicited.

In summary, it is submitted that claims 1 through 6 as currently amended are patently distinguishable. Allowance of the application is solicited. To the extent necessary, a petition for

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an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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WDC99 1117226-1.067161.0134